MIC 87-I-10 A

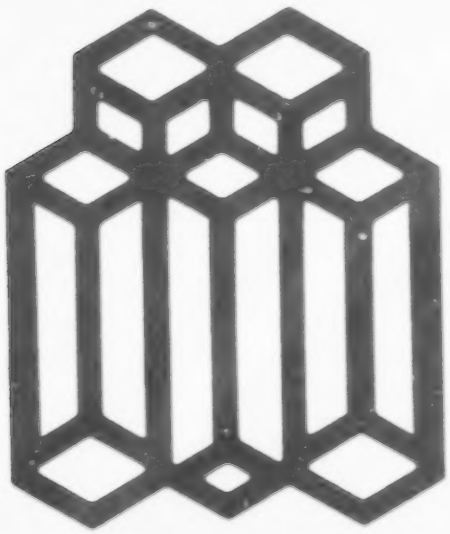
1987
Census of Mineral Industries

MIC87-I-10A

INDUSTRY SERIES

Iron Ores

Industry 1011



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If you have any questions concerning the statistics in this report, call (301) 763-5938.

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Issued November 1989

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INTRODUCTION

PURPOSE AND USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source of facts about the structure and functioning of the Nation's economy. They provide essential information for government, business, industry, and the general public.

Economic censuses furnish an important part of the framework for such composite measures as the gross national product, input-output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policy-making agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries, and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic censuses every 5 years, covering years ending in 2 and 7. The 1987 Economic Censuses consist of the

Census of Retail Trade
Census of Wholesale Trade
Census of Service Industries
Census of Transportation
Census of Manufactures
Census of Mineral Industries
Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1987 Census of Agriculture and 1987 Census of Governments are conducted separately.) The next economic censuses are scheduled to be taken in 1993 covering the year 1992.

AVAILABILITY OF THE DATA

The results of each of the economic censuses are available in printed reports, for sale by the U.S. Government Printing Office, and on microfiche, computer tape, compact discs with read-only memory, and flexible diskettes, for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Census Bureau, Washington, DC 20233. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State Data Centers in every State and Business and Industry Data Centers in many States also supply economic census statistics.

WHAT'S NEW IN 1987

Several changes have taken place for the 1987 censuses. Data will be reported on the basis of the newly revised Standard Industrial Classification (SIC) system with selected reports including "bridge tables," linking the old and new classification systems. A new set of metropolitan areas has been adopted, and more detailed information will be available for businesses with no paid employees. For additional information on these changes, review the subsequent text.

HISTORICAL INFORMATION

The economic censuses have been taken together as an integrated program at 5-year intervals since 1967, and before that for 1963, 1958, and 1954. Prior to that time, the individual censuses were taken separately at varying intervals.

The economic censuses trace their beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial

activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 manufactures census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade, and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 economic censuses were the first to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. These were the first censuses to be taken by mail, using lists of firms provided by the administrative records of other federal agencies. Since 1963, administrative records have also been used to provide basic statistics as well for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic censuses, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The Census of Construction Industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The Census of Transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks. New for 1987 are publications reporting on business establishments engaged in several transportation industries, paralleling the data on establishments in other sectors. This is part of a gradual expansion in coverage of industries previously subjected to government regulation. The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic censuses in 1972 along with the Survey of Women-Owned Businesses.

Economic censuses have also been taken in Puerto Rico since 1909, in the Virgin Islands and Guam since 1958, and in the Northern Mariana Islands since 1982.

Statistical reports from the 1982 and earlier censuses provide historical figures for the study of long-term time series, and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the censuses provide complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, the results of which appear in publication series such as *Current Business Reports* (retail and wholesale trade and service industries), the *Annual Survey of Manufactures, Current Industrial Reports,* and the *Quarterly Financial Report.* Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the censuses. The *County Business Patterns* program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1987 Economic Censuses and Related Statistics.* More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1987 Economic Censuses.* Contact Customer Services for information on availability.

CENSUS OF MINERAL INDUSTRIES

General

This report, from the 1987 Census of Mineral Industries, is one of a series of 12 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each geographic division showing statistics by State and for special subjects, such as water use and fuels and electric energy consumed.

The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text will discuss the economic significance of the mining sector, the relation of value added by mining to value added by manufacture, some of the changes in statistical concepts over the history of the census, and the valuation problems arising from intracompany transfers between mining establishments, manufacturing plants, and sales offices and sales branches of a company.

Scope of Census and Definition of Mineral Industries

The 1987 Census of Mineral Industries covers all establishments with one paid employee or more primarily engaged in mining as defined in the *1987 Standard Industrial Classification (SIC) Manual*[1]. This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

[1]**Standard Industrial Classification Manual: 1987.** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

The SIC Manual defines mining in the broad sense to include the extraction of minerals occurring naturally: solids such as coal and ores, liquids such as crude petroleum, and gases such as natural gas. The term "mining" is used in the broad sense to include quarrying, well operation, milling (crushing, screening, washing, flotation, etc.), and other preparations needed to make minerals marketable. Exploration is included as is the development of mineral properties. Services performed on a contract, fee, or other basis in the exploration and development of mineral properties are classified separately but within this division.

Mining operations are classified by industry on the basis of the principal mineral produced or, if there is no production, on the basis of the principal mineral for which exploration or development work is in progress. The recovery of material from culm banks, ore dumps, and other waste mineral piles is classified in the appropriate mining industry according to the mineral product recovered.

The crushing, grinding, or other treatment of certain earths, rocks, and other nonmetallic minerals not in conjunction with mining activities is not included in this division but is classified as manufacturing. Hauling and other transportation beyond the mine property and contract hauling (except out of open pits in conjunction with mining) also are excluded.

Mining operations carried on as secondary activities at manufacturing establishments (such as clay pits at clay products plants or sand and gravel operations at ready-mixed concrete plants) are not within the scope of this census. However, selected data (production workers' wages and hours; total cost of supplies, fuels, electric energy, and contract work; and quantity of production for mined products) on such mining activities have been obtained in the 1987 Census of Manufactures and are included in the mining reports. They are clearly specified wherever included.

Establishment Basis of Reporting

The census of mineral industries covers each mining establishment of firms with one paid employee or more operating in the United States. A company operating more than one establishment is required to file a separate report for each location. A mineral establishment is defined as a single physical location where mineral operations are conducted.

For oil and gas field operations and for contract services, the basis for reporting is different from the "establishment" basis used for other types of mining. Firms operating oil and gas wells, drilling wells, or exploring for oil and gas for their own account were required to submit a separate report for each State or offshore area adjacent to a State in which it conducted such activities. Firms that performed contract services for oil and gas field operations or for mining establishments were required to submit one report covering all such activities in the United States and to include information on receipts for services and production-worker wages and hours, by State. These consolidated reports were then allocated to State establishments based on the data reported at the State level. The 1987 figures for establishments include the summation of operations for each State allocated from these nationwide reports.

Use of Administrative Records

From a mailout universe of about 34,000 mining establishments, approximately 12,000 small single-establishment companies were not mailed a questionnaire. For these establishments, some employment, payroll, and receipts data were obtained from the administrative records of other agencies. Selection of the small establishment non-mail cases was done on an industry-by-industry basis, and a variable cutoff was used to determine those establishments for which administrative records were to be used in place of a census report. This information was then used in conjunction with industry averages and other information to estimate the statistics for administrative-record and nonresponse establishments. The first column in tables 2 and 4 provides an indication of the extent that these establishments account for the figures shown. The value of shipments and receipts and cost of supplies were generally not distributed among specific products and supplies for these establishments, but were included in the product and supply "not specified by kind" categories. Overall, establishments for which administrative-record data were used accounted for less than 2 percent of total value of shipments and receipts.

The industry classification codes included in the administrative-record files were used for those establishments excused from filing census forms. Generally, these codes were assigned on the basis of brief descriptions of the general activity of the establishment. Where the description was incomplete, or where there were relatively fine lines of demarcation among industries or between mining and nonmining activities, the code assigned to an establishment could differ from that which would have been assigned on the basis of more complete product or activity information. Therefore, the total establishment count should be viewed as an approximate measure. The counts for establishments with 20 employees or more are far more reliable.

In the 1987 census, as in the 1982, 1977, and 1972 censuses, data for single-unit firms without paid employees were excluded. This exclusion had only a slight effect on industry aggregates for most industries. Data for firms without employees were included in the 1963, 1958, and 1954 censuses if they reported more than $500 in (1) value of shipments and receipts, (2) cost of supplies and purchased machinery, or (3) capital expenditures.

Auxiliaries

Statistics for employment and payroll for individual industries and industry groups also include employment and payroll figures for administrative offices, warehouses,

storage facilities, and other auxiliary establishments servicing mining establishments. As in previous censuses, respondents were asked to file separate reports (form ES-9200) for any separately operated auxiliary establishments. Classification of employment and payroll data at such auxiliary establishments was based on the mining establishments served.

Industry Classification of Establishments

Each of the establishments covered in the census was classified in 1 of 31 mineral industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for mineral industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 manual notes the revisions in the four-digit industry levels between 1972/77 and 1987.

An industry is generally defined as a group of establishments producing the same product or closely related group of products. The resulting group of establishments must be significant in terms of its number, value added by mining, value of shipments and receipts, number of employees, and payroll. Application of these criteria led to formulation of 31 mining industries for 1987, and each was assigned a four-digit code. This represents a reduction of four-digit industries from 42 in 1972/77. The classification system also provides broader groups of industries, with 20 three-digit groups and 4 two-digit groups. Within industries, the system provides for seven-digit products and five-digit product classes. Products are considered primary to an industry if the first four digits of the product codes are the same as the industry code. Products whose first four code numbers differ from the industry code are called secondary products. To determine the industry classification of an establishment, the seven-digit products are grouped together according to the first four digits of the product code. The first four digits of the group of products with the largest value of production become the industry code for the establishment. (For mineral service industries, the classification is on the basis of receipts for services performed.)

In most industries, establishments making products falling into the same industry category use a variety of processes. Separate statistics are provided on the various types of operation. Whenever possible, separate figures are shown for establishments with mines only, mines with preparation plants, and preparation plants only. Separate figures are provided by type of mine (underground, open pit, and combination). Separate statistics also are provided on producing and nonproducing operations, an establishment being defined as nonproducing if no mineral products were shipped during the year.

Statistics usually are provided on the production of minerals mined and used in the same establishment for producing prepared minerals or used at the producing establishment for fuel.

Differences in the integration of production processes and types of operation should be considered when relating the general items (employment, payrolls, value added, etc.) to the product and material data.

Value of Shipments for the Industry Compared With Value of Product Shipments

This report shows value of shipments and receipt data for industries and products. In tables 1a through 4, these data represent the total value of shipments and receipts of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6 represents the total value of all products shipped that are classified as primary to an industry and includes those that were shipped by all mining establishments regardless of their industry classification. Value of product shipments also may include some products shipped from mining operations associated with manufacturing establishments.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1 through 4 of this report is based on the total value of shipments and receipts and capital expenditures. When the total value of shipments and receipts cannot be shown without disclosing information for individual companies, the complete line is suppressed. If capital expenditures alone is a disclosure, only total capital expenditures and cost of supplies statistics are suppressed. However, the suppressed data are included in higher-level totals.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1987 Census of Mineral Industries may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications. Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards on the basis of either the response rate or a consistency review.
(X)	Not applicable.
(Z)	Less than half the unit shown.
do	Ditto.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, and bbl, are used in the customary sense. Where the term "tons" only is used, it refers to short tons of 2,000 pounds; where the figures are expressed in tons of 2,240 pounds, the unit of measure is specified as "long tons" or "l tons."

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Mineral Industries–Five-year industry and product statistics	Minerals Branch Industry Division Bureau of the Census	(301) 763-5938
Mineral Industries–Annual product statistics (domestic and international) except fuels	Bureau of Mines	
	Metals	(202) 634-1055
	Nonmetallic minerals	(202) 634-1202
	International	(202) 632-8970
Mineral Industries– Coal and oil and gas production	National Energy Information Center (NEIC) staff Department of Energy	(202) 586-8800
To order any Census Bureau publication	Customer Services (DUSD) Bureau of the Census	(301) 763-4100
Import/Export publications	Foreign Trade Division	(301) 763-5140

Users' Guide for Locating Statistics in This Report by Table Number

[For explanation of terms, see appendix]

Item	Industry and historical	Industry by State	Industry by type of operation	Industry by employment size	Industry-product analysis	Detailed product shipments by State	Detailed supplies consumed by industry
Number of operating companies	1						
Establishments:							
Total number	1	2	3	4			
Employment and payroll:							
Number of employees	1	2	3	4			
Payroll	1	2	3	4			
Production, development, and exploration—							
Workers	1	2	[1]3	4			
Hours	1	2	[1]3	4			
Wages	1	2	3	4			
Supplemental labor costs			[1]3				
Value added, cost of supplies, shipments, and inventories:							
Value added by mining	1	2	3	4			
Cost of supplies	1	2	[1]3	4			[1]7a
Resales, cost and value			3				
Purchased fuels consumed			3				[1]7b
Purchased electricity			[1]3				
Cost of contract work			3				
Industry shipments and receipts	1	2	3	4	[1]5		
Value of net shipments					[1]5		
Product shipments						6	
Inventories			3				
Gross book value of depreciable or depletable assets, beginning and end of year; depreciation and depletion charges for year:							
Buildings and structures, except land[2]			3				
Machinery and equipment[2]			3				
Mineral exploration and development[2 3]			3				
Mineral land and rights[2 3]			3				
New and used capital expenditures, excluding land and rights:							
Total	1	2	3	4			
Buildings and structures			3				
Machinery and equipment			3				
Mineral exploration and development[3]			3				
Capitalized mineral land and rights[2 3]			3				
Rental payments			[1]3				
Expensed mineral exploration, development, land, and rights[3]			[1]3				

[1]Detailed information shown.
[2]Not published in MIC87-I-13A.
[3]Not published in MIC87-I-13B and MIC87-I-13C.

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Iron Ores

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Publication Program ..... Inside back cover

DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

This report shows 1987 Census of Mineral Industries statistics for establishments classified in the following industry:

SIC CODE AND TITLE

1011 Iron Ores

The industry statistics (employment, payroll, value of shipments, cost of supplies, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also all secondary activities performed by the same establishments. This fact should be taken into account in comparing industry statistics (tables 1 through 4 and 7) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of net shipments of primary products of the industry produced as secondary products by establishments classified in other industries.

Small single-establishment companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other Federal agencies. This information was used in conjunction with industry averages and other information to develop estimates for all statistics. The first column in tables 2 and 4 provides an indication of the extent that these establishments account for the figures shown.

Establishment data were tabulated based on industry definitions included in the 1987 Standard Industrial Classification (SIC) Manual[1].

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

[1]**Standard Industrial Classification Manual: 1987.** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 1011, IRON ORES

This industry is made up of establishments primarily engaged in the mining, beneficiating, or otherwise preparing iron ores. This industry includes production of sinter and other agglomerates, except those associated with blast furnace operations.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system.

In the 1987 Census of Mineral Industries, Industry 1011, Iron Ores, recorded employment of 7.1 thousand. This employment figure was 39 percent below the 11.7 thousand reported in 1982. The total value of shipments and receipts for the industry was $1.4 billion. The value added by mining was $767.9 million in 1987. Value added per employee was $108 thousand in 1987; it was $66 thousand in 1982.

The total cost of supplies used by establishments classified in this industry amounted to $618.5 million.

Data on selected supplies appear in table 7a. The total cost of fuels used in this industry amounted to $65.6 million in 1987. Data on specific fuels used appear in table 7b.

Establishments of single-establishment companies in this industry with up to 12 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were imputed as described above. These establishments accounted for 1 percent of total value of shipments and receipts.

The Bureau of the Census statistics on products for industry 1011, are not entirely comparable with product statistics for the same industry published by the Bureau of Mines. The differences that occur result primarily from differences in data collection methods, coverage, and objectives sought. For example:

1. The Bureau of the Census crude iron ore statistics exclude any iron ore mined by establishments that are not classified as Industry 1011, Iron Ores, that is, where iron ore is not the primary product mined. This production was very small.

2. The Bureau of the Census excludes single-establishment companies with no paid employees. However, the contribution to products of such iron ore establishments is very small. The Bureau of Mines includes all reports obtained regardless of size.

3. The Bureau of the Census product statistics cover treated ore and agglomerates produced from domestic or imported materials. It does not include those products produced at iron and steel plants. The Bureau of Mines excludes from their domestic mine production or shipments the product of foreign ores beneficiated in the United States.

Table 1. Historical Industry Statistics: 1987 and Earlier Census Years

[1987 definition of industry is the same as used in 1972 and 1977 Standard Industrial Classification (SIC) system. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Establishments during year		All employees		Production, development, and exploration workers			Value added by mining (million dollars)	Cost of supplies used, purchased machinery installed, etc. (million dollars)	Value of shipments and receipts (million dollars)	Capital expenditures (million dollars)
	Companies (number)	Total (number)	With 20 employees or more (number)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
	INDUSTRY 1011, IRON ORES											
1987	39	51	16	7.1	224.2	5.8	11.2	171.4	767.9	618.5	1 362.4	24.0
1982	50	78	40	11.7	339.8	7.0	12.6	201.2	770.3	706.7	1 414.3	62.7
1977	70	97	61	19.3	372.3	13.9	28.5	253.3	1 046.4	1 026.6	1 614.4	458.5
1972	(NA)	111	56	19.7	218.2	15.3	30.2	155.6	701.5	423.7	1 065.0	60.1

Table 2. Industry Statistics for Selected States: 1987 and 1982

[States with 100 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1987											1982	
		Establishments during year		All employees		Production, development, and exploration workers			Value added by mining (million dollars)	Cost of supplies used, purchased machinery installed, etc. (million dollars)	Value of shipments and receipts (million dollars)	Capital expenditures (million dollars)	All employees[2] (1,000)	Value added by mining (million dollars)
	E[1]	Total (number)	With 20 employees or more (number)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						
INDUSTRY 1011, IRON ORES														
United States	-	**51**	**16**	**7.1**	**224.2**	**5.8**	**11.2**	**171.4**	**767.9**	**618.5**	**1 362.4**	**24.0**	**11.7**	**770.3**
Michigan	-	6	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Minnesota	-	13	6	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	7.6	515.8
Missouri	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Ohio	-	2	2	BB	(D)	-	-	-	-	-	-	-	7	-

[1]Some payroll and sales data for small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1 – 10 to 19 percent; E2 – 20 to 29 percent; E3 – 30 to 39 percent; E4 – 40 to 49 percent; E5 – 50 to 59 percent; E6 – 60 to 69 percent; E7 – 70 to 79 percent; E8 – 80 to 89 percent; E9 – 90 percent or more.

[2]Data lines with less than 100 employees are not shown. Some statistics are withheld to avoid disclosing data for individual companies. If employment is 100 or more, number of establishments is shown and employment size range is indicated by one of the following symbols: AA – 100 to 249 employees; BB – 250 to 499 employees; CC – 500 to 999 employees; EE – 1,000 to 2,499 employees; FF – 2,500 employees or more.

Table 3. Summary Statistics by Industry and Type of Operation: 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Industry 1011, Iron Ores	
	All establishments	Mines with preparation plants
Establishments during year ..... number	51	12
With 0 to 19 employees ..... do.	35	2
With 20 to 99 employees ..... do.	6	1
With 100 employees or more ..... do.	10	9
All employees:		
Average for year 1,000	7.1	6.5
Payroll for year ..... mil dol.	224.2	203.3
Production, development, and exploration workers:		
Average for year 1,000	5.8	5.6
March ..... do.	4.7	4.6
May ..... do.	5.2	5.1
August ..... do.	7.1	6.9
November ..... do.	6.1	5.9
Hours ..... millions	11.2	10.9
January to March ..... do.	2.4	2.3
April to June ..... do.	2.7	2.6
July to September ..... do.	2.9	2.8
October to December ..... do.	3.2	3.1
Wages ..... mil dol.	171.4	168.6
Supplemental labor costs not included in payroll ..... do.	69.0	67.9
Legally required expenditures, including Social Security contributions ..... do.	28.9	28.6
Payments for voluntary programs ..... do.	40.0	39.4
Value added by mining ..... do.	767.9	756.7
Cost of supplies ..... do.	618.5	603.5
Supplies used, minerals received, and purchased machinery installed ..... do.	260.8	248.1
Resales ..... do.	(Z)	-
Purchased fuels consumed ..... do.	65.6	64.8
Purchased electric energy:		
Quantity ..... mil kWh	6 261.8	6 237.1
Cost ..... mil dol.	258.1	257.0
Electric energy generated less sold ..... mil kWh	-	-
Contract work ..... mil dol.	34.0	33.7
Cost of purchased communication services ..... do.	1.2	1.2
Value of shipments and receipts ..... do.	1 362.4	1 338.2
Value of resales ..... do.	(Z)	-
Inventories, end of 1986 ..... do.	217.3	200.6
Mined or quarried products ..... do.	104.9	93.6
Supplies, parts, fuels, etc. ..... do.	112.4	107.0
Inventories, end of 1987 ..... mil dol.	214.2	202.1
Mined or quarried products ..... do.	111.3	103.3
Supplies, parts, fuels, etc. ..... do.	102.9	98.8
Gross book value of depreciable assets (usually original cost) at beginning of year ..... do.	4 180.8	4 152.7
Buildings and other structures, except land ..... do.	1 282.2	1 278.5
Machinery and equipment ..... do.	2 815.7	2 795.5
Mineral exploration and development ..... do.	(D)	(D)
Mineral land and rights ..... do.	(D)	(D)
Capital expenditures during year (except land and mineral rights) ..... do.	24.0	22.0
New capital expenditures during year ..... do.	(D)	(D)
Buildings and other structures, except land ..... do.	(D)	(D)
Machinery and equipment ..... do.	21.4	19.7
Used capital expenditures during year ..... do.	.8	(D)
Buildings and other structures, except land ..... do.	-	-
Machinery and equipment ..... do.	.8	(D)
Mineral exploration and development ..... do.	(D)	-
Capitalized mineral land and rights ..... do.	(D)	(D)
Deductions from depreciable assets during year ..... do.	(D)	(D)
Buildings and other structures, except land ..... do.	(D)	(D)
Machinery and equipment ..... do.	42.7	(D)
Mineral exploration and development ..... do.	.1	-
Mineral land and rights ..... do.	.1	.1
Depreciation and depletion charges for year ..... do.	138.3	138.9
Buildings and other structures, except land ..... do.	32.4	32.3
Machinery and equipment ..... do.	101.7	100.7
Mineral exploration and development ..... do.	(D)	(D)
Mineral land and rights ..... do.	(D)	(D)
Gross book value of depreciable assets at end of year ..... do.	4 162.2	4 132.6
Buildings and other structures, except land ..... do.	1 282.9	1 279.2
Machinery and equipment ..... do.	2 795.2	2 773.5
Mineral exploration and development ..... do.	(D)	(D)
Mineral land and rights ..... do.	(D)	(D)
Rental payments during year ..... do.	3.8	3.8
Buildings and other structures, except land ..... do.	(D)	(D)
Machinery and equipment ..... do.	(D)	(D)
Lease rents ..... do.	(D)	(D)
Expensed mineral exploration, development, land, and rights ..... do.	(D)	(D)
Mineral exploration and development ..... do.	16.0	16.0
Mineral land and rights ..... do.	(D)	(D)

Table 4. Industry Statistics by Employment Size of Establishment: 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	Establishments during year (number)	All employees		Production, development, and exploration workers			Value added by mining (million dollars)	Cost of supplies used, purchased machinery installed, etc. (million dollars)	Value of shipments and receipts (million dollars)	Capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
INDUSTRY 1011, IRON ORES											
Total	-	**51**	**7.1**	**224.2**	**5.8**	**11.2**	**171.4**	**767.9**	**618.5**	**1 362.4**	**24.0**
Establishments with an average of—											
0 to 4 employees	E8	17	(Z)	.5	(Z)	(Z)	.3	.6	.6	1.1	.1
5 to 9 employees	E9	9	.1	1.1	(Z)	.1	.8	1.8	2.0	3.5	.3
10 to 19 employees	E1	9	.1	3.2	.1	.2	1.8	13.8	8.2	20.6	1.4
20 to 49 employees	-	5	1.0	34.8	.5	.9	14.8	61.7	607.7	102.1	22.2
50 to 99 employees	-	1	(D)	(D)	-	-	-	-	-	-	-
100 to 249 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
250 to 499 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
500 to 999 employees	-	5	3.9	184.6	5.2	10.0	153.7	690.1	(D)	1 235.1	(D)
1,000 to 2,499 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	22	.1	1.8	.1	.2	1.4	3.1	3.4	6.0	.5

Note: Data shown as a (D) are included in underscored figures above.

[1]Some payroll and sales data for small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate statistics for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Some payroll and sales data for small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate data shown for these small establishments. Data are also included in respective size classes shown.

Table 5. Industry-Product Analysis—Summary of Industry Shipments and Receipts and Net Shipments of Primary Products: 1987 and 1982

[Million dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as resales or contract work. Columns A–E show this product pattern for an industry. Extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F–H. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

SIC code	Industry and year	Value of shipments and receipts					Value of net shipments of primary products or services		
		Total	Primary products	Secondary products	Receipts for services	Products purchased and resold without further processing	Total produced in all industries	Produced in this industry	Produced in other industries
		A	B	C	D	E	F	G	H
1011	Iron ores 1987	1 362.4	(D)	(D)	–	(Z)	[1] 360.5	(D)	(D)
	1982	1 414.3	(D)	(D)	(D)	–	[1] 358.2	(D)	(D)

[1]Represents sum of direct-shipping ores, iron ore concentrates for consumption, and iron agglomerates.

Table 6. Products or Services for Selected States: 1987 and 1982

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of the products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For comparability of product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Product code	Geographic area and product		1987			1982		
			Quantity of production for all purposes	Product shipments		Quantity of production for all purposes	Product shipments	
				Quantity	Value (million dollars)		Quantity	Value (million dollars)
1011- -	**IRON ORES**							
	Net production and shipments[1]	**mil l tons**	**47.0**	**47.1**	**1 360.5**	**32.5**	**31.8**	**1 358.2**
10111 --	Crude iron ores	do.	144.6	.8	9.9	103.3	(D)	(D)
10111 21	Direct-shipping ores[2]	do.	.8	.8	9.9	.6	.6	7.6
10111 23	Ores for treatment, concentration, etc.	do.	143.8	–	–	102.7	(D)	(D)
10112 --	Iron ore concentrates and agglomerates	do.	(X)	46.3	1 350.5	(X)	31.2	1 350.6
	Iron ore concentrates, including washed material	do.	47.5	.6	25.2	33.9	1.2	34.1
10112 03	For consumption	do.	.6	.6	25.2	1.2	1.2	34.1
10112 05	For agglomeration plants not at blast furnaces	do.	46.9	–	–	32.7	(Z)	(Z)
10112 07	Iron agglomerates: pellets, sinter, briquets, and other	do.	45.6	45.7	1 325.4	30.7	30.0	1 316.5
10110 00	Iron ores, n.s.k.[3]		(X)	(X)	1.9	(X)	(X)	18.2

[1]Represents sum of direct-shipping ores, iron ore concentrates for consumption, and iron agglomerates.
[2]Includes estimates for small companies (estimates were made from administrative-record data rather than collected from respondents).
[3]Represents value for establishments that did not report detailed data.

Table 7a. Selected Supplies, Minerals Received for Preparation, and Purchased Machinery Installed: 1987 and 1982

[Includes quantity and cost of supplies consumed or put into production by establishments classified only in this industry. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Supply code	Industry and supply consumed		1987		1982	
			Quantity	Delivered cost (million dollars)	Quantity	Delivered cost (million dollars)
	INDUSTRY 1011, IRON ORES					
	Selected supplies used, minerals received for preparation, and purchased machinery installed		**(X)**	**260.8**	**(X)**	**320.2**
	Minerals or ores for preparation:					
100093	Crude ore received for concentration	mil l tons	(D)	(D)	(D)	(1)
100093	Crude ore produced and concentrated at same establishment	do	143.6	(X)	97.2	(X)
100095	Concentrates produced and agglomerated at same establishment	do	47.6	(X)	33.1	(X)
353020	Purchased machinery installed, including equipment installed at the operation as well as mobile loading and transportation equipment		(X)	15.8	(X)	49.0
353030	Parts and attachments (except those listed elsewhere) for construction, mining, and conveying equipment; and for preparation machinery		(X)	48.0	(X)	42.0
	Supplies used:					
145000	Bentonite and other clay nonmetallic minerals		(X)	16.1	(X)	17.1
280110	Industrial chemicals (chemical reagents, calcium chloride, fatty acids, etc.), except explosive materials and blasting accessories		(X)	(D)	(X)	17.0
289211	Explosive materials, except ammonium nitrate	mil lb	46.9	9.3	51.2	11.8
289212	Ammonium nitrate	do	34.5	4.3	24.9	3.1
289214	Blasting accessories		(X)	1.3	(X)	1.3
290000	Lubricating oils and greases, including hydraulic oils		(X)	4.6	(X)	4.8
301100	Tires and inner tubes		(X)	5.9	(X)	6.7
330900	Steel castings, steel forgings, and metallic grinding media		(X)	50.2	(X)	36.2
331201	Steel mill shapes and forms (such as plates, sheets, roof bolts, bars, rails, wheels, pipe, tubing, wire products, and structural shapes)		(X)	(D)	(X)	12.8
970099	All other supplies		(X)	68.8	(X)	[1]97.6
971000	Undistributed—minerals, purchased machinery, parts, attachments, and supplies used[2]		(X)	3.1	(X)	20.8

[1]Cost for supply code 100093 was included with supply code 970099 to avoid disclosing data for individual companies.
[2]Represents cost for establishments that did not report detailed data, including establishments that were not mailed a form.

Table 7b. Fuels Consumed by Type: 1987 and 1982

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Fuel code	Industry and fuel consumed		1987 consumption		1982 consumption	
			Quantity	Delivered cost (million dollars)	Quantity	Delivered cost (million dollars)
	INDUSTRY 1011, IRON ORES					
	Fuels used		(X)	65.6	(X)	115.1
120005	Coal—bituminous, subbituminous, lignite, and anthracite	1,000 tons	(D)	(D)	523.5	29.0
	Fuel oil:					
291141	Distillate (light) grade numbers 1, 2, 4, and light diesel fuel	1,000 bbl	542.7	13.5	647.4	27.5
291151	Residual (heavy) grade numbers 5 and 6 and heavy diesel fuel	do	(D)	(D)	(D)	(D)
131159	Gas—natural, manufactured, and mixed	bil cu ft	21.0	44.7	13.0	50.3
291111	Gasoline	mil gal	1.0	.8	1.8	1.8
960018	Other fuels—liquefied petroleum gas, coke, wood, and other		(X)	2.4	(X)	(D)
974000	Undistributed fuels[1]		(X)	.5	(X)	2.2

[1]Represents cost for establishments that did not report detailed data, including establishments that were not mailed a form.

APPENDIX A.
Explanation of Terms

Employment and related items—The report forms requested separate information on production, development, and exploration workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees—This item includes all full-time and part-time employees on the payrolls of mining establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Also included are employees working for miners paid on a per ton, car, or yard basis. Excluded are employees at the mine but on the payroll of another employer (such as employees of contractors) and employees at company stores, boarding houses, bunk houses, and recreational centers. Also excluded are members of the Armed Forces and pensioners carried on the active rolls but not working during the period. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded.

Production, development, and exploration workers—This item includes employees (up through the working-supervisor level) engaged in manual work (using tools, operating machines, hauling materials, loading and hauling products out of the mine in mine cars or trucks, and caring for mines, plants, mills, shops, or yards). Included are exploration work, mine development, storage, shipping, maintenance, repair, janitorial, and guard services, auxiliary production for use at establishments (such as power plant), record keeping, and other services closely associated with these production and development operations at the establishment covered by the report. Gang and straw bosses and supervisors who performed manual labor are included, as are employees paid on either a time- or piece-rate basis. Also included are miners paid on a per ton, car, or yard basis and persons engaged by them and paid out of the total amount received by these miners. In addition, other employees at the establishment but not on its payroll are included if paid directly through its own employees, such as superintendents and supervisors. The payments received by these types of employees are included as part of the establishments payroll. Employees above the working-supervisor level are excluded from this category.

All other employees—This item covers nonproduction employees of the establishment including those engaged in the following activities: supervision above the working-supervisor level, sales, highway trucking (by employees not entering mines or pits), advertising, credit, collection, clerical and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria and medical), professional (such as engineers and geologists), and technical activities. Also included are employees on the payroll of the establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force. (Workers engaged in regular maintenance and repair operations are not included here but are classified as production, development, and exploration workers.)

Separately operated auxiliary establishments employees—This item includes employment at separate central administrative offices or auxiliary units of multiestablishment companies and at those offices or units servicing more than one establishment during the payroll period which included March 12. Establishments are classified on the basis of the industry or principal industry served. Employees at an office located at or near the mining establishment are usually included in the mine report.

All employees, average for year—The 1987 census report form requested employment figures for production, development, and exploration workers for four selected pay periods (mid-March, May, August, and November). For all other employees, only a mid-March figure was requested. The annual average is an average of the four monthly figures for production, development, and exploration workers plus the March figure for all other employees. This approach was used to simplify the schedule format and lighten the reporting burden of respondents, since it was found that the average of these selected pay periods closely approximates, for most industries, the average employment for the year that would be obtained from 12 monthly pay periods.

Payroll—This item includes the gross earnings of all employees on the payroll of mining establishments paid in the calendar year 1987. Respondents were told that in reporting they could follow the definition of payroll used for calculating the Federal withholding tax. It includes all forms of compensation such as salaries, wages, commissions, payments received on a ton, car, or yard basis, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group

insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to the proprietor or partners of unincorporated concerns, and payments to members of Armed Forces and pensioners carried on the active payroll of mining establishments. Also excluded are royalty payments to unions and costs of smithing, explosives, fuses, electric cap lamps, and mine supplies used in production and development work but charged to employees and deducted from their wages.

As in the case of employment and establishment figures, the annual payrolls of separate auxiliary establishments of multiestablishment companies are included in the totals for individual industries and for States.

Production-, development-, and exploration-worker hours—This item represents all hours that production, development, and exploration workers worked, both on active days during which there was production or development work and on inactive days when only security guards, inspectors, repair persons, and other maintenance persons were on duty. It includes all hours worked or paid for at the mining operations, except hours paid for vacations, holidays, or sick leave, when the employee was not at the establishment. Included are actual overtime hours, not straight time equivalent hours. Hours of working proprietors or partners are excluded.

Supplemental labor costs—This item represents employer's cost for fringe benefits not included in payrolls.

Legally required expenditures, including Social Security contributions—This cost includes employer contributions for all programs required under Federal and State legislation, such as Federal Old Age and Survivors' Insurance, unemployment compensation, and worker's compensation. Also included are legally required State temporary disability payments.

Payments for voluntary programs—Included in this cost are payments resulting from union negotiated contracts and all employer payments of insurance premiums on hospital and medical plans, life insurance premiums, and premiums on supplementary accident and sickness insurance. For programs supported by joint employer-employee contributions, only the employer payments are included. Also included are payments or allocations on all pension plans regardless of methods of administration, supplemental unemployment compensation plans, welfare plans, stock purchase plans in which the employer payment is not subject to withholding tax, and deferred profit sharing plans.

Value added by mining—This measure of mining activity is derived by subtracting the cost of supplies, minerals received for preparation, purchased machinery installed, purchased fuel, purchased electricity, and contract work from the sum of the value of shipments (mining products plus receipts for services rendered) and total capital expenditures. This statistic avoids the duplication in value of shipments and receipts which results from the use of products of some establishments as supplies, energy sources, or materials by others. Moreover, it provides a measure of value added not only in mineral production but also in the development of mineral properties. For these reasons, it is considered to be the best value measure for comparing the relative economic importance of mining among industries and geographic areas.

Cost of supplies used, purchased machinery installed, etc.—Besides supplies used and purchased machinery installed, this cost includes fuels and electric energy used and contract work done by others for each establishment. It includes charges to both the current and capital accounts. It also includes the cost of items used during 1987 whether they were purchased, withdrawn from inventories, or received from other establishments of the company. For selected supplies and fuels and for electric energy, both quantity and cost data were requested. The cost data refer to direct charges actually paid or payable (after discounts) for items used during the year. Freight charges and other direct charges incurred by the establishment in acquiring the item are included. Companies whose records did not show actual amounts used were asked to approximate use by adding purchases (or receipts) during the year to opening inventory and subtracting closing inventory. Separate figures were requested for (1) selected supplies used, minerals received for preparation, and purchased machinery installed; (2) electric energy purchased; (3) purchased fuels used for heat, power, or the generation of electricity; (4) contract work done by others; and (5) products bought and resold in the same condition. Supplies and equipment used in mine development, plant expansion, and capitalized repairs, which are chargeable to fixed assets accounts, are included in this item, as are supplies furnished without charge to contractors for use at the mining operation and supplies sold to employees for use at the establishment. Excluded are such costs as advertising, insurance, telephone, and research and consulting services of other establishments or such overhead costs as depreciation charges, rent, interest, and royalties.

Selected supplies used, minerals prepared, etc.—In addition to the total cost of supplies used, purchased machinery installed, etc., which every establishment was required to report, information was also collected on the consumption of major supplies used in mining. These inquiries were restricted to supplies which were important parts of the cost of production, exploration, and development of a particular industry and for which cost information was available. Table 7a contains information on specific supplies consumed. On report forms for most mineral industries (except the contract services and the crude petroleum and natural gas industries), a uniform inquiry was included on minerals prepared at the reported establishments. Figures were obtained on crude minerals mined

at the establishment (quantity), received from other establishments of the company or purchased from others (quantity and cost), and received for preparation on a custom or toll basis (quantity and estimated value). Establishments consuming less than a specified amount (usually $25,000) were not required to report the cost of a supply. For small establishments for which administrative records were used, the cost of supplies was included in "not specified by kind." (See Summary of Findings for the importance of administrative records to any industry.)

Value of shipments and receipts and net shipments—The amounts shown as value of shipments and receipts for each industry (tables 1 through 5), and for individual products or classes of products (table 6), are the net selling values, f.o.b. mine or plant after discounts and allowances, excluding freight charges. Shipments includes all products physically shipped from the establishment during 1987, including material withdrawn from stockpiles and products shipped on consignment, whether or not sold in 1987. Prepared material or concentrates includes preparation from ores mined at the same establishment, purchased, received from other operations of the same company, or received for milling on a custom or toll basis. For products transferred to other establishments of the same company or prepared on a custom basis, companies were requested to report the estimated value, not merely the cost of producing the items. Multiestablishment companies were asked to report value information for each establishment as if it were a separate economic unit. They were instructed to report the value of all products transferred to other plants of the company at their full economic value; to include, in addition to direct cost of production, a reasonable proportion of company overhead and profits.

For all establishments classified in an industry, value of shipments and receipts includes (1) the value of all primary products of the industry, (2) the value of secondary products which are primary to other industries, (3) the receipts for contract work done for others, except custom milling, and (4) the value of products purchased and resold without further processing. Receipts for custom milling are not included to avoid duplication with the value of custom milled ores included in an industry's primary and secondary products.

Some duplication exists in industry and industry group totals because of the inclusion of materials transferred from one establishment to another for mineral preparation or resale. When this duplication is significant, figures generally are shown for both gross and net shipments. The net shipments are obtained by subtracting the value of crude minerals transferred to other establishments for preparation and the value of resales from the gross shipments.

Shipments of individual products—In the 1987 Census of Mineral Industries, information was collected on output for about 200 individual mineral products. In general, the shipments figures of the 1987 and 1982 minerals censuses were confined to separate totals for each crude and each prepared mineral. When shipments were significant, separate figures were also obtained on crude minerals going to preparation plants and those going to consumers.

Figures were collected on both quantity and value of shipments. Shipments includes commercial shipments and transfers of products to other operations of the same company. For products that are used to a significant extent within the same establishment for power or heat, and for minerals mined and prepared in the same establishment, total production figures or separate data on production for such uses were collected. Typically, production was also collected for products for which there was usually significant differences between total production and total shipments because of stock changes.

For service industries, the amount received or due for services performed during 1987 was collected as a measure of output. For mine operators who also perform services, the amount received for such services was added to the total value of products shipped to determine total value of shipments and receipts for each establishment.

Table 6 provides the National and State total shipments figures from all industries for each of the products primary to the industry covered.

Capital expenditures—This item covers expenditures made during the year for development and exploration of mineral properties, for new construction, and for purchased machinery chargeable to fixed assets accounts of the mineral establishment. They are the type for which depreciation, depletion, or Office of Minerals Exploration accounts are ordinarily maintained. Capital expenditures during 1987 were determined as "additions completed during the year plus construction in progress at the end of the year minus construction in progress at the beginning of the year." Reported capital expenditures includes work done on contract, as well as by the mine forces. Expenditures for machinery and equipment includes those made for replacement purposes, as well as those for additions to capacity. Excluded from these expenditures were costs of maintenance and repairs charged as current operating expense and expenditures for land and mineral rights.

Whenever applicable, separate figures were provided for expenditures for development and exploration of mineral property, construction of preparation plants and other construction, new machinery and equipment, used plant, and used equipment acquired from others.

Gross value of depreciable assets—Assets data were collected on buildings, other structures, machinery, equipment, capitalized mineral exploration and development, and mineral land and rights for which depreciation, amortization, or depletion accounts are maintained. The values shown represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation

costs). The data were collected for the beginning and end of the year. Assets at the beginning of the year plus new and used capital expenditures minus retirements should equal assets at the end of the year. For new construction or other improvement projects in progress but not completed by the end of the year, the cumulative capital expenditures were included in the beginning- and end-of-year assets figures.

Retirements—This item represents the gross value of depreciable assets sold, retired, scrapped, destroyed, abandoned, etc., during 1987. The values shown are the acquisition costs of the retired assets. This item includes the value of assets (at acquisition cost rather than current market value) transferred to other establishments of the same company.

Depreciation—This item shows the reduction in value of depreciable assets brought about through use, gradual obsolescence, or the effect of the elements (decay or corrosion) during the year. Included are charges against assets acquired or completed during the year.

Rental payments—This item consists of rental payments made to other companies for use of such depreciable assets as buildings, other structures, machinery, and equipment. It does not include payments made to the parent company or another subsidiary of the parent company for the use of buildings and equipment owned by the parent company or its subsidiary. The value of such company-owned assets is included in the gross value of depreciable assets.

For 1987, a clarification was made to the instructions for rental payments to indicate that the equipment should be reported according to the type of lease negotiated with the lessor. If the lease qualified as an "operating lease" the periodic payments made to the producer or the lessor should be reported in the rental section. However, if the leasing arrangement met the criteria set down by the Financial Accounting Standards Board for a "capital lease", the original cost or market value of the equipment or building was to be reported as a value of fixed assets and not as rental payments.

Current account expenditures—This item includes all expenses for mineral properties, exploration, and development charged to current accounts. This includes all supplies, machinery, equipment, parts, fuels, power, etc., used for development or exploration and charged to current operating expenses. Also included are royalty payments, acquisition costs for mineral land and rights which were not capitalized, and the cost of maintenance and repairs associated with exploration or development activity and charged to current accounts.

Inventories—This item includes inventories of mined or quarried products and supplies, parts, fuels, etc., at the beginning and end of the year. Included as mined or quarried products are stockpiles of products ready for shipment and stocks of raw products awaiting treatment or beneficiation. Beginning in the 1982 Census of Mineral Industries, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from the 1977 census in which respondents were permitted to value their inventories using any generally accepted accounting method. The inventory figures for 1987 and 1982, therefore, will not be comparable to prior census data because of the change in reporting instructions.

Fuels and electric energy used—This item includes the quantity and cost of fuels and electric energy used in mining. For most industries, separate quantity and cost figures are shown for purchased coal, distillate fuel oil, residual fuel oil, gas, gasoline, and electric energy, and a cost figure is shown for "other fuels" (see table 7b). Data were also obtained on the quantity of fuels and electric energy produced and consumed at the same establishment. These data are shown for coal, crude petroleum, and natural gas used at the producing establishments for heat and power, and for electric energy generated and used at the same mining operations. For electric energy, the quantity generated and used is approximated by subtracting the quantity of electric energy sold from the total quantity generated (excluding generating station use).

APPENDIX B.
Changes in Census of Mineral Industries Product Codes for 1987

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product codes were revised for 1987. Listed below are the revisions to the product codes. The terms published and collected are defined as follows: (1) published refers to the code used in the published reports for 1987 and 1982, and (2) collected refers to the code appearing on the report forms for 1987]

1987 published	1987 collected	1982 published
10112 07	10112 07	10112 06 10112 08
10611 00	10611 00	10611 21 10611 23 10611 51
10810 18	10810 18	10810 12 10810 15 10810 19
10942 03 10942 04	10942 03 10942 04	10942 01
10942 05	10942 05	10942 02
10992 11	10511 00	10511 00
10992 21	10512 00	10512 00
10993 11	10921 00	10921 00
10993 21	10923 00	10923 00
10999 21	10999 21	10997 00 10999 21
12211 04 12211 05 12211 06	12111 04 12111 05 12111 06	12111 01
12211 14 12211 15	12111 14 12111 15	12111 03
12211 14—Con. 12211 16	12111 14—Con. 12111 16	12111 03—Con.
12212 07 12212 08 12212 09	12112 07 12112 08 12112 09	12112 01
12212 17 12212 18 12212 19	12112 17 12112 18 12112 19	12112 03
12221 04 12221 05	1211A 04 1211A 05	12111 01
12221 14 12221 15	1211A 14 1211A 15	12111 03
12222 07 12222 08	1211B 07 1211B 08	12112 01
12222 17 12222 18	1211B 17 1211B 18	12112 03
12311 04	11111 04	11111 01
12311 14	11111 14	11111 03
12312 07	11112 07	11112 01
12312 17	11112 17	11112 03
12410 12	11120 12 12130 12	11120 12 12130 12
12410 13	11120 13 12130 13	11120 13 12130 13
12410 14	11120 14 12130 14	11120 14 12130 14
12410 15	11120 15 12130 15	11120 15 12130 15
12410 16	11120 16 12130 16	11120 16 12130 16
12410 17	11120 17 12130 17	11120 17 12130 17
12410 19	11120 19 12130 19	11120 19 12130 19
13810 00 13810 15	13810 00 13810 15	13810 00
14552 01 14552 02	14552 01 14552 02	14552 00
14591 11	14521 00	14521 00
14591 21	14522 00	14522 00
14592 11	14531 00	14531 00
14592 21	14532 00	14532 00
14593 00	14540 00	14540 00
14744 01 14744 03	14744 01 14744 03	14744 00
14791 12	14721 00	14721 00
14791 22	14722 00	14722 00
14792 12	14731 00	14731 00
14792 22	14732 00	14732 00
14793 00	14760 00	14760 00
14794 00	14770 00	14770 00
14799 00	14790 00	14790 00
14997 12	14921 00	14921 00
14997 22	14922 00	14922 00
14998 12	14961 00	14961 00
14998 22	14962 00	14962 00
14999 01	14999 01	14997 01
14999 05	14999 05	14997 05
14999 07	14999 07	14997 11
14999 98	14999 98	14997 98

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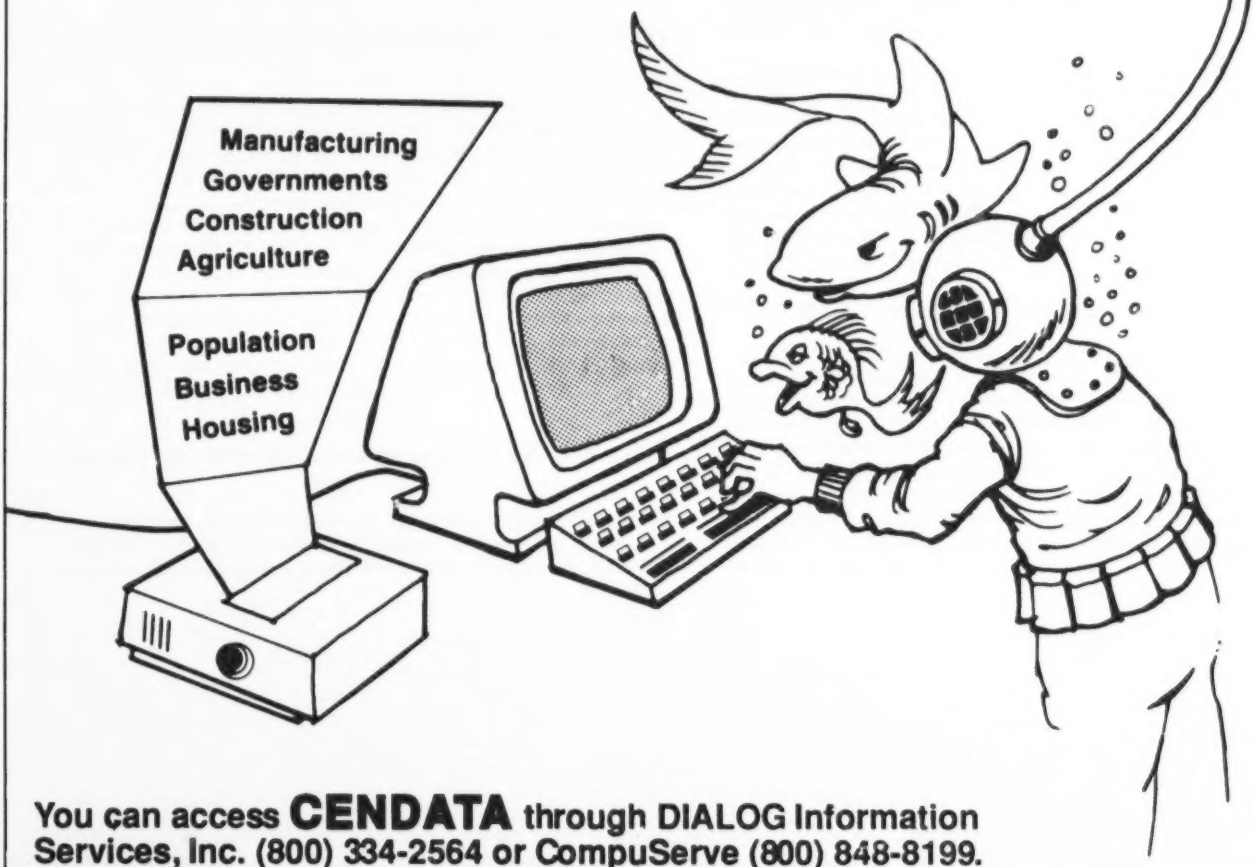

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PUBLICATION PROGRAM

1987 CENSUS OF MINERAL INDUSTRIES

Publications of the 1987 Census of Mineral Industries, containing data on establishments primarily engaged in the extraction of minerals, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.

Preliminary Reports

Industry series—12 reports (MIC87-I-10A(P) to -14E(P))

Preliminary data from the 1987 census are issued in 12 separate reports covering 31 mineral industries. Preliminary summary data for the U.S. and States are released in one report.

Final Reports

Industry series—12 reports (MIC87-I-10A to -14E)

Each of the 12 reports provides information for an industry or a group of related industries (e.g., clay, ceramic, and refractory minerals). Final figures for the United States are shown for each of 31 mineral industries on quantity and value of products shipped and supplies used; inventories; quantity and cost of fuels and electric energy purchased, and the quantities of fuels produced and consumed; capital expenditures; assets; rents; employment; depreciation, amortization and depletion; payrolls; hours worked; cost of purchased machinery; value added by mining; mineral development and exploration costs; number of establishments; and number of companies. Comparative statistics for earlier years are included. Industry statistics are shown by State, type of operation, and size of establishment.

Geographic area series—9 reports (MIC87-A-1 to -9)

A separate report for each of the nine geographic divisions presents statistics for individual States for two- and three-digit industry groups by type of operation and by county. Also, data are shown for value of shipments, value added by mining, employment, payroll, hours worked, capital expenditures, cost of supplies, etc., purchased machinery installed, and number of mining establishments, with comparative 1982 data on employment and value added by mining.

Subject series—3 reports (MIC87-S-1 to -3)

Each of the three reports contains detailed statistics for an individual subject, such as water use in mineral industries, fuels and electric energy consumed, and a general National-level summary.

Reference series—1 report (MC87-R-1)

The Numerical List of Manufactured and Mineral Products includes a description of the principal products and services published in the 1987 Censuses of Manufactures and Mineral Industries.

MICROFICHE

Every final published report in the 1987 Census of Mineral Industries will be available on microfiche.

PUBLIC-USE COMPUTER TAPES AND COMPACT DISCS

Data from the final industry series, and geographic area series will be available on public-use computer tapes and compact discs-read only memory (CD-ROM). These tapes will provide the same information found in the final reports. Computerized data products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, DC 20233.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, manufactures, transportation, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1987 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.